

ABSTRACT

67. The present invention discloses, in certain aspects, systems and methods for producing cyclical impacts and, in certain aspects for moving a drilling apparatus for drilling a borehole in a formation, the system in certain embodiments including a housing with a longitudinal axis and a movable member movably disposed therein and movable within the housing transversely to the longitudinal axis of the housing and positioned within the housing with a first space on a first side thereof and a second space on a second side thereof, the movable member substantially fluidly isolating the two spaces and movable to compress gas in one of the first space and the second space while decompressing gas in the other space so that a charge of compressed gas exits from the housing to move an impact member; e.g. for impacting a pile to be driven into the earth or for impacting a drill apparatus for drilling a wellbore, the movable member movable continuously to provide a series of impacts.